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EXAMINER

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1 RECORD OF ORAL HEARING

2
3 UNITED STATES PATENT AND TRADEMARK OFFICE

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5
6 BEFORE THE BOARD OF PATENT APPEALS
7 AND INTERFERENCES

8
9
10 Ex parte CHRISTIAN MARZOLIN
11 and DAVID QUERE

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14 Appeal 2009-003530
15 Application 09/926,367
16 Technology Center 1700

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19 Oral Hearing Held: June 10, 2009
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23 Before BRADLEY R. GARRIS, BEVERLY A. FRANKLIN, and
24 LINDA M. GAUDETTE, Administrative Patent Judges

25
26 ON BEHALF OF THE APPELLANT:

27
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1 The above-entitled matter came on for hearing on Wednesday,
2 June 10, 2009, commencing at 1:23 p.m., at the U.S. Patent and Trademark
3 Office, 600 Dulany Street, Alexandria, Virginia, before Victoria L. Wilson,
4 Notary Public.

5 THE USHER: Calendar number 24. Appeal number 2009-3530.
6 Mr. Vastine.

7 JUDGE GARRIS: Thank you.

8 DR. VASTINE: Good afternoon.

9 JUDGE GARRIS: Good afternoon, Dr. Vastine.

10 (Discussion off the record.)

11 JUDGE GARRIS: All right, sir. As you know, you have about 20
12 minutes to discuss your case. And please begin.

13 DR. VASTINE: Okay. I don't think it will take 20 minutes. What we
14 have in the present invention is a claim directed to a substrate that has a
15 hydrophobic oleophilic -- well, it is a hydrophobic oleophilic -- no, I said
16 that wrong -- hydrophobic oleophobic substrate and it is formed of a -- it has
17 a relief appearance, a surface appearance, and important aspects of the late
18 or substrate as it is formulated is this very low attractive surface, a surface
19 that is attractive to water.

20 A very important limitation of the claim is that this hydrophobicity
21 and oleophobicity is characterized in the description of the advance of a
22 water droplet that is placed on the surface of the substrate such that if you
23 look at the -- I don't know -- maybe it would be -- might be helpful for me to
24 draw something -- but if a droplet is formed on the surface, you find that it
25 has a very pronounced tucked-in region on either side, showing the rejection,
26 the ability of that surface for the water. It just doesn't wet.

1 Water has a very hard time wetting that surface. And so you have a
2 high angle of contact here. I don't know if you cans see it too well but you
3 have your horizontal line here and then coming up on the tangent in this area
4 and that defines the angle here, the contact angle.

5 Okay. So the contact angles that we have, Applicants have shown in
6 their specification, are very high, 170, 180 degrees. I mean it is -- it is a very
7 restrictive effect.

8 Now, another characteristic of it is that they speak in terms of an
9 advancing droplet so that, if, say, the droplet were moving along in this
10 direction, this angle of contact would be maintained.

11 Characteristically, if you go in the opposite direction, you, as evident
12 by the statement "without substantially changing the hysteresis," and the
13 very end of the claim, "obtained with a flat substrate," so that the angle of
14 retreat is very close to the angle of advance, there is not much difference,
15 which means a low hysteresis of this kind of surface. And that's the way
16 "hysteresis" is defined in this invention.

17 Now, it is also used, hysteresis, you have a hysteresis effect in
18 magnetization. From a magnetization standpoint, it is a movement in the
19 magnetic properties up to a point and then if you try to remove the
20 magnetization, there is not a direct retreat right along the line that you went
21 up but, rather, off-centered and that's what this hysteresis means.

22 The low hysteresis that you get here (indicating) is measured in terms
23 of a difference in those contact angles. Okay. So when we say -- talk about
24 hysteresis in the context of this kind of surface giving you a very low
25 hysteresis effect.

26 So summing it all up, that kind of surface provides a very desirable

1 surface, for instance, in -- well, there are many applications. It is written in
2 the specification of applications in windshields, screens of one sort or
3 another that are going to come into contact with water and that's a
4 characteristic of it. They feel it is a very significant effect. So that's the
5 invention.

6 Now, we have the Huang, if I said that right, the reference that's been
7 cited and in this case, as shown -- well, as they describe it, you have -- again,
8 a picture helps -- a grid kind of structured like this (indicating) where you
9 have -- let's see -- all right -- these narrow strips here are hydrophobic zones;
10 okay?

11 The broader speckled zones are hydrophilic, so this is a combination
12 where you have hydrophilicity and hydrophobicity occurring and the result
13 is that in here when this surface is wetted, the hydrophilic areas, obviously,
14 are going to catch the water and it will provide -- because of the
15 hydrophilicity -- and this typically is a resin that may contain a fair
16 concentration of inorganic oxide particles, for instance to give it that water
17 attractive capability -- you get a -- you maintain a thin layer of water in those
18 zones.

19 They tend, then, to migrate -- I'm sorry -- where you have the
20 hydrophobic zone here, right, there is very little water attraction, so that
21 when this sheet is wetted, water moves itself, is moved, over to the -- or is
22 attracted to the hydrophilic zones and leaves the glass or whatever it is in
23 that manner; okay?

24 So the intentionality here is the setting up of these
25 hydrophilic/hydrophobic zones and so there is a different mechanism that is
26 operative and we feel it doesn't fall within the scope of the claim. And that's

1 basically it.

2 JUDGE GARRIS: Well, let me ask you to look at page 9 of your
3 specification, please, because the last paragraph on page 9 of your
4 specification seems to describe a substrate that is very similar to the
5 substrate disclosed by Huang. It describes the substrate which possesses
6 areas of hydrophobicity, as well as hydrophilic areas that are adjacent to one
7 another, just as in the Huang substrate.

8 And so, it seems to me that the substrate of Huang is at least similar to
9 the embodiment shown in that paragraph on page 9, in due respect, so my
10 question, then, is does claim 1 on appeal include that claim -- that page 9
11 embodiment?

12 In other words, does claim 1 include not just hydrophobic areas but
13 also hydrophilic areas just like Huang discloses? If you feel that it does not
14 include both types of substrate areas, hydrophobic as well as hydrophilic,
15 then please refer to me the claim language that you feel excludes both areas
16 being present on the substrate.

17 DR. VASTINE: Well, I can't give you an in-depth history of the case
18 and the way things developed, but as to the claim that we have, we are
19 definitely -- it is definitely oriented to a surface which exhibits
20 hydrophobicity and oleophobicity. It is not inclusive of a surface that has
21 hydrophilicity and oleophilic agents or a combination thereof; you know
22 what I mean?

23 JUDGE GARRIS: No, I really don't. I know it is referring to a
24 hydrophobic oleophobic substrate but, of course, we do have a substrate in
25 Huang that includes a hydrophobic surface. The point of your argument
26 today and the argument that was in the Brief is that Huang's substrate also

1 includes hydrophilic areas on that substrate and you say this is really
2 different from what I'm claiming but I don't see in claim 1 any language
3 which excludes the presence of hydrophilic areas on the substrate.

4 DR. VASTINE: Well, I guess perhaps the most relevant limitation is
5 that description at the end of the relief structure of the hydrophobic
6 oleophobic surface as to the -- what happens to a water droplet on that
7 surface in its movement or traverse of a substrate where you have a certain
8 angle of advance and a certain angle of retreat.

9 The best I can say at this point is that those conditions -- that
10 condition of a very low historicity [sic] would not prevail if you have a
11 hydrophilic component to this structure as Huang does.

12 JUDGE GARRIS: I guess the question that I would ask you in
13 response to that remark is why would not this functional language in the last
14 clause of claim 1 be describing how a droplet of water would act on the
15 hydrophobic area 2 of Huang's substrate?

16 It is that raised area 2 in figures 1 and 2 of Huang that is the
17 hydrophobic area, and if a droplet of water were on that area, then it is the
18 examiner's position it would inherently or latently possess the capability of
19 reacting just as required by the last clause of claim 1.

20 DR. VASTINE: Well, I don't -- I think that in terms of -- if you have
21 a plate or a substrate like Huang does where you have discrete hydrophilic
22 and oleo -- no -- hydrophilic and oleophilic zones, that you are going to have
23 that preferential migration on the surface away from the hydrophobic zone
24 or oleophilic zone onto the hydrophilic; you see what I mean?

25 JUDGE GARRIS: Yes, I do understand that's going to occur.

26 DR. VASTINE: Yes.

1 JUDGE GARRIS: And, in fact, that's exactly what Huang discloses.
2 It is also exactly what you disclose in the last paragraph on page 9 of your
3 specification.

4 But really my question is while that droplet of water is on the
5 hydrophobic zone of Huang's substrate, would it not necessarily seem as
6 though it would act in exactly the fashion that is required by the last clause
7 in claim 1.

8 DR. VASTINE: Well, except that in the -- let's see. In Huang -- I'm
9 referring to that figure -- you have a very substantial hydrophobic area,
10 okay, versus hydrophilic, so there is going to be a preferential migration
11 away from those hydrophobic zones.

12 I mean you can't help but have that condition prevail, so that it
13 accumulates in the hydrophilic and then perhaps drains off the surface; you
14 see what I mean? It is going to happen, in other words, because the
15 attractive properties of each surface is different to water, all right, the water
16 droplet. On a hydrophilic surface --

17 JUDGE GARRIS: We understand that. I'm not sure that is something
18 that is excluded by claim 1 is my response to that. We probably won't be
19 able to completely resolve this issue today but I think that is one of the
20 issues that is raised by this appeal. Let me ask if there are any further
21 questions. Judge Franklin? Judge Gaudette?

22 DR. VASTINE: Could I ask a question in return?

23 JUDGE GARRIS: Sure.

24 DR. VASTINE: I know there is a table, I think it is table 4 in the
25 spec, that lists angles of retreat and angles of advance characteristic of the
26 claimed device.

1 Now, this would put numerical limitations, if you will, on angle
2 advance versus angle of retreat. Is something along those lines more
3 substantive from your point of view?

4 JUDGE GARRIS: Well, in terms of whether that would make the
5 claim allowable or not is an issue that we would not be prepared to discuss
6 today.

7 DR. VASTINE: Sure. I understand.

8 JUDGE GARRIS: We need the Examiner to give some kind of
9 analysis of that issue. Okay. I think that's about it for today.

10 DR. VASTINE: Okay.

11 JUDGE GARRIS: Dr. Vastine, thank you very much for coming in
12 and helping us with this case.

13 DR. VASTINE: Thank you.

14 Whereupon, the proceedings at 1:40 p.m. were concluded.